Business Architecture, SOA & BPM

• Learn about SOA and Business Process Management (BPM)

• Learn how to build process diagrams using business process modeling notations (BPMN), and more.

• Touch existing BPM tools:
  – IBM Lombardi, TIBCO BPM Studio, Oracle BPM

• Learn about enhancing BPM via Conversational Semantic Decision Support, while working with Business Architecture Sandbox for Enterprise (BASE)
What is SOA and Business Architecture?

Architecture:
- The art and science of designing complex systems
- Provides high level views of a complex system

SOA:
- Service Oriented Architecture focuses on enterprise software services reused for multiple applications

Business Architecture:
- Looks at a system from business perspectives
- Provides business product and process views
- A collaborative ground for enterprise architects and business analysts
Business Architecture Views

Answer the questions: What and How

• **Business Architecture/Product View:**
  - Products Lines – Products – Features (What)

• **Business Architecture/Process View:**
  - Business Process (How)
  - Business Process or Workflow Diagrams connect business functions/services into applications
A common approach to Transportation Services

In the Net-Centric Architecture every airport, airline, seaport, plane, train, or ship is a **Service Agent**, which can produce and consume services.

- FAA Services
- Sea Port Facility Services
- Airport Facility Services
- Onboard Services

List Services
Order Services
Register Services
Subscribe to Services
Service Centric Mentality

Business Process
(use)
Business Services
(use)
Integration and Internal Services
(use)
Data Layer Services

Business Architecture/Product View:
Product Lines – Products – Features
Technology Architecture: Business Services
With SOA from Applications to Service Scenarios

<scenario name="Order" type="CompositeService">
  <action scenario="Login" result="UserID" />
  <action scenario="GetOrderData(UserID)" result="OrderID" />
  <action scenario="PlaceOrder(UserID,OrderID)" />
</scenario>

NEXT:
1) Allow Subject Matter Experts to Define the Rules
2) Map business descriptions to existing services (semantics)
Modeling Business Process as a Set of Connected Services
Example: Order Process*

*From IBM Lombardi Tutorial:

SOA & BPM
http://ITofTheFuture.com
Business Process Management
FAA Next Gen Service Registration Example
(with TIBCO BPM)
Connect Model To Reality (existing services) and Make it Work
### BPMN

#### Activity
- **Task**
- **Task loop**
- **Collapsed Sub Process**
- **Loop Activity**
- **Compensation**
- **Multiple Instance**
- **Collapsed sub process with Loop**

#### Gateways
- **Exclusive OR**
- **Exclusive OR (Event Based)**
- **1.1 Pentagon from STAR**
- **OR**
- **Complex**
- **Parallel**

#### Events
- **Start**
- **Intermediate**
- **End**

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**SOA & BPM**

[http://ITofTheFuture.com](http://ITofTheFuture.com)
BPM Diagram Example*

IBM (Lombardi) BPM Components

• Process Center
  – A central development environment and repository for multiple process authors working in the Process Center Console and other interfaces.
  – Includes:
  – Process Center Server that executes the processes and services built in the Authoring Environment
  – Performance Data Warehouse that collects process data according to tracking requirements established in Lombardi Authoring Environment.

Process modeling and management interfaces

• **Actors: Individuals, Groups and System Participants**

• **Authoring Environment**
  Interfaces to model, implement, simulate, and inspect business processes. Authors can create process models, services, and other assets within process applications.

• **Process Center Console**
  Allows users to create Business Process Definitions (BPD), process applications, General, Integration and Human Services, Rule Services and Toolkits.
  - Managing workspaces and snapshots, configuring Inspector (Debugging) and Simulations.
  - Enables the installation of applications on Process Servers in runtime environments.

• **Process Admin Console**
  Enables administrators to configure and maintain the Process Servers in any configured runtime environment, such as staging, test or production environments.

• **Performance Admin Console**
  Enables administrators to configure and maintain Performance Data Warehouses

• **Process Portal**
  Enables process participants to perform assigned tasks, view the history of tasks, and view the performance of their processes and teams.
BPM with Oracle Business Process Composer

Reference: [http://docs.oracle.com/cd/E28280_01/user.1111/e15177/toc.htm](http://docs.oracle.com/cd/E28280_01/user.1111/e15177/toc.htm)
BPM with Oracle Business Process Process Composer

- **Oracle BPM Supports:**
  - Process Modeling with BPMN 2.0
  - Process Simulation and Analysis
  - User Interface Design
  - Rules Management
BPM with Oracle Business Process Composer

- Oracle BPM Supports:
  - Business and IT Collaboration
  - Web and Mobile Workspaces
Major Steps in Creating an Application with Oracle BPM

1. Business Process Composer
2. Business Process Composer
3. BPM Repository
4. BPM Repository
5. BPM Runtime
Applying the conversational, semantic approach to Business Process Management (BPM)

• While technology speaks XML and Web Services, business people prefer natural language (NL)
• A conversational semantic decision support can bridge these two worlds and provide mapping between NL and services
• For example, a Business Analyst (BA) writes a line of requirements: “application starts with login.”
• The program would reply “Do you mean the Authentication Service?”

Reference: [http://ITofTheFuture.com](http://ITofTheFuture.com)
Business Architecture Sandbox for Enterprise (BASE)

• BASE* offers to business an easy entrance and a playground to collaborate with IT.

• BASE helps placing the seeds of semantic technology in the current business ground and helps transitioning to Semantic Cloud Architecture.

Reference: [http://ITofTheFuture.com](http://ITofTheFuture.com)
Development of Workflow Components within the semantic model

A business analyst can type: “build a new enrollment workflow” and the program will display existing workflows and services that can be used for the Enrollment workflow.

Then, BASE will start a conversational wizard helping to connect a new component to the existing model and will continue with the development recommendations.
Example: “On Boarding” Workflow

We’ll pick up an existing component, in this case “On Boarding Workflow” and use the EDIT control to customize this component.

We will use the Create Similar control to end up with the new component, Enrollment for Web Services Workflow, similar to the existing component. We customize the new component and provide a URL to the Service Gateway for Service Registration. Before updating the business state, the program will check for unique and meaningful names, provide automatic linkage to existing enterprise components, and make all changes visible to collaborative communities.
Creating a rule with semantic check

Current decision model for the selected business component is below. [Run the Component Decision Model]
Test rules: Match | MisMatch | Random

<table>
<thead>
<tr>
<th>RuleFamilyId</th>
<th>RuleFamilyName</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Determine Person Identity</td>
</tr>
</tbody>
</table>

ConditionDataNames:
- SSN
Person Name [Find Best Match] or [Create]
Person Address [Find Best Match] or [Create]
Person Account Status [Find Best Match] or [Create]

ConclusionDataNames:
- Person Identity Validation Action [Find Best Match] or [Create]

Add more records

Semantic reality check for Condition data names:
Known DATA ATTRIBUTE: SSN

Definition:
No match was found for PERSON NAME in the Enterprise Business Model. You still can [CREATE PERSON NAME] in your Local Glossary and collaborate with an architect to indicate the Retrieval and Validation Methods for the Data Attribute. Meanwhile we recommend you consider suggestions below and collaborate to map this data attribute to the Enterprise Business Glossary. Another option is to come back to change the name of the data attribute.

The best matches for PERSON NAME are:

Type: DATA ATTRIBUTE; Name: LAST NAME

The resulting screen displays this rule family and automatically produces the links for running and testing the model. The program provides the semantic reality check for Condition Data Names. Some data attributes, like SSN, are already in the system, and some are not. The program provides recommendations on mapping the data names to similar data attributes, existing in the system, or creating new attributes on-the-fly.
The rules are present as the rows and columns in the **decision table**. Each row is a separate rule, which includes several **conditions** and a **conclusion**. BASE uses semantic approach to connect the rules and data (a common RE problem). From “applications know how to handle data” to “data know how to handle data’.

Reference: [http://ITofTheFuture.com](http://ITofTheFuture.com)